

10/00/88

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L6: Entry 1 of 3

File: USPT

May 14, 2002

DOCUMENT-IDENTIFIER: US 6387626 B1

TITLE: Covalent attachment of unmodified nucleic acids to silanized solid phase surfaces

Detailed Description Text (12):

In the most preferred embodiment, the invention provides for methods of covalent attachment of unmodified oligonucleotides onto mercapto-silanized surface or epoxy-silanized surfaces with high density and high stability. The ease of preparation of unmodified oligonucleotides coupled with stable ether (epoxy) or thio-ether (mercapto) linkage attachments renders this method the most cost effective, with little or no variation in terms of the quality of oligonucleotides, stability of attachment linkage and consistency in large scale batch to batch manufactures. Additionally, the hydrophobic property of silane surfaces also allows simultaneous patterning of multiple DNA probes in a high density and in a variety of array formats. Furthermore, a DNA array that is stable to high salt and denaturing conditions such as DMF, urea and elevated temperatures, has wide uses in miniaturized biotechniques such as genetic testing, sequencing by hybridization and combinatorial selection of DNA binding molecules.

Detailed Description Text (45):

Using the method described in the present patent application, oligonucleotide primers can be immobilized on solid phases like polystyrene or glass, hybridized to PCR-derived, single-stranded templates, and subjected to enzymatic extension at their 3'-ends by a single, labeled ddNTP. The nature of the incorporated ddNTP is determined by the nucleotide that is located in the opposite strand (the polymorphic nucleotide). This assay can be conveniently carried out both in polystyrene ELISA plates, or on glass slides.

\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 13:46:35 ON 09 MAY 2003

=> file medline caplus biosis embase

COST IN U.S. DOLLARS

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FULL ESTIMATED COST

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FILE 'EMBASE' ENTERED AT 13:47:24 ON 09 MAY 2003

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=> s oligonucleotide(10a)immobiliz##(10a)glass(10a)(urea or acetamide)

L1 0 OLIGONUCLEOTIDE(10A) IMMOBILIZ##(10A) GLASS(10A)(UREA OR ACETAMIDE)

=> s oligonucleotide(10a)immobiliz##(10a)glass

L2 49 OLIGONUCLEOTIDE(10A) IMMOBILIZ##(10A) GLASS

=> s l2 and (hybridiz#####(10a)(urea or acetamide))

L3 0 L2 AND (HYBRIDIZ#####(10A)(UREA OR ACETAMIDE))

=> s oligonucleotide (10a) immobiliz##### (10a)urea(10a)hybrid#####

L4 0 OLIGONUCLEOTIDE (10A) IMMOBILIZ##### (10A) UREA(10A) HYBRID#####

=> s oligonucleotide (10a) immobiliz##### (10a)(urea or acetamide)

L5 1 OLIGONUCLEOTIDE (10A) IMMOBILIZ##### (10A)(UREA OR ACETAMIDE)

=> s l5 and hybridiz#####

L6 1 L5 AND HYBRIDIZ#####

=> d l6 bib ab kwic

L6 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS

AN 1993:206933 CAPLUS

DN 118:206933

TI Oligonucleotide probe immobilization on nylon membranes

IN Kawasaki, Ernest S.; Levenson, Corey H.; Will, Stephen G.; Zhang, Yong

PA Hoffmann-La Roche, F., und Co. A.-G., Switz.

SO Eur. Pat. Appl., 17 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 511559	A1	19921104	EP 1992-106603	19920416
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
	AU 9215062	A1	19921105	AU 1992-15062	19920423
	ZA 9202950	A	19930920	ZA 1992-2950	19920423
	CA 2067426	AA	19921031	CA 1992-2067426	19920428

NO 9201683	A	19921102	NO 1992-1683	19920429
BR 9201591	A	19921201	BR 1992-1591	19920429
JP 05168499	A2	19930702	JP 1992-155569	19920430
PRAI US 1991-694226		19910430		

AB Oligonucleotide probes are immobilized on nylon membranes with a high d. of anionic carboxyl groups via an amide bond. A method for attachment of the probes to the membrane is also disclosed. The single (5'-end) attachment of the oligonucleotides to the membrane surface leaves the probe free to interact with complementary sequences, thus increasing the **hybridization** efficiency relative to probes attached by methods in which heat or UV light is used for immobilization. The simplicity and reproducibility of this method and the sensitivity attained when using the reagents produced by the method are ideal for application of the method and reagents to the diagnosis of infectious and genetic diseases, the anal. of mutations in neoplasias, HLA typing, and other areas. Immobilized probes for detection of a cystic fibrosis mutant sequence and a RAS mutant sequence (including 3 RAS probes, differing by only 1 base and representing the possible sequence changes in codon 12 of N-RAS, immobilized on 1 dot) were tested.

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ST oligonucleotide **hybridization** probe immobilization membrane; cystic fibrosis mutation probe immobilization; RAS oncogene mutation probe immobilization

IT Carboxyl group  
(anionic, nylon membrane with high d. of, oligonucleotide **hybridization** probes immobilization on)

IT Cystic fibrosis  
(gene for, mutation in, **hybridization** probes for detection of, immobilization on nylon membranes of)

IT Mutation  
(in cystic fibrosis or c-ras genes, **hybridization** probes for detection of, immobilization on nylon membranes of)

IT Polyamides, uses  
RL: USES (Uses)  
(membrane of, oligonucleotide **hybridization** probes immobilization on)

IT Membranes  
(nylon, oligonucleotide **hybridization** probes immobilization on)

IT Amides, uses  
RL: USES (Uses)  
(oligonucleotide **hybridization** probes immobilization on nylon membrane by)

IT Nucleic acid **hybridization**  
(oligonucleotide probes immobilized on nylon membrane for)

IT Nucleotides, polymers  
RL: BIOL (Biological study)  
(oligo-, immobilization on nylon membrane of, for **hybridization** assay)

IT Recombination, genetic

(translocation, **hybridization** probes for detection of,  
immobilization on nylon membranes of)

IT Gene, animal  
RL: BIOL (Biological study)  
(c-ras, mutation in, **hybridization** probes for detection of,  
immobilization on nylon membranes of)

IT 57-13-6D, **Urea**, O-acyl derivs.  
RL: FORM (Formation, nonpreparative)  
(formation of, in **oligonucleotide** probe  
**immobilization** on nylon membrane)

IT 147014-43-5, Biodyne C  
RL: USES (Uses)  
(membrane of, oligonucleotide **hybridization** probes  
immobilization on)

IT 9035-51-2, Cytochrome P450, analysis  
RL: ANST (Analytical study)  
(nucleic acids encoding, **hybridization** probes for detection  
of, immobilization on nylon membranes of)

IT 147178-33-4D, peroxidase conjugates 147178-34-5D, peroxidase conjugates  
147178-35-6D, peroxidase conjugates  
RL: USES (Uses)  
(oligonucleotide probe for RAS sequence detection immobilized on  
nylon membrane **hybridization** to)

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